REMARKS

STATUS OF THE CLAIMS

Claims 1-31 are currently pending in this application.

Claims 1-31 stand rejected.

Claims 1, 8-16, 20, 21, 25, 26, and 31 are amended herein.

CLAIM REJECTIONS

Reconsideration of the pending application is respectfully requested in view of the following remarks.

Claim Rejections under 35 U.S.C. §101

Claims 8-16, 20, 21, 25 and 26 stand rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. In particular, the Examiner asserts on page 2 of the Office Action:

> "Claim 8 recites a "computer readable medium" which is directed to non-statutory subject matter as the broadest reasonable interpretation includes covers both *transitory* and non-transitory forms. Language limiting the claims to a "non-transitory computer readable storage medium" would preclude the non-statutory embodiments, such as carrier waves and other transitory means."

Without addressing the veracity of the Examiner's arguments, and solely in order to expedite allowance of the present application, Claims 8-16, 20, 21, 25 and 26 have been amended to recite "a non-transitory computer readable storage medium", consistent with the Examiner's suggested claim language, where such language has been encouraged by the USPTO for allowing claims under 35 USC 101. Accordingly, this rejection is deemed overcome in view of the Examiner's suggested language. Reconsideration and removal of this 35

U.S.C. § 101 rejection of Claims 8-16, 20, 21, 25 and 26 is respectfully requested.

Claim Rejections under 35 U.S.C §103

Claims 1, 5, 8, 9, 17, and 27-31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,177,931 to Alexander et al. (hereinafter "Alexander") in view of U.S. Patent No. 6,446,261 to Rosser (hereinafter "Rosser"). These rejections are respectfully traversed as the prior art combination fails to teach or suggest each of the features recited in independent claims 1, 8 and 31.

Independent claim 1 recites in relevant part:

> "from a server-side, inputting historical data information regarding demographic information tagged to the viewer for the viewer's demographic group;
> generating preferred program guide information based on the historical data information for the viewer's demographic group and based on bias metrics;
> inputting the preferred program guide information for the demographic group;
> at a client-side system, associating the preferred program guide information with the viewer's monitor behavior; and
> defining therefrom a knowledge base with demographic group cluster information of the viewer in terms of statistical state machine transition models." (emphasis added).

Independent claim 31 recites analogous features and limitations.

Further, independent claim 8 recites, inter alia:

> "associating a particular demographic group of the plurality of demographic groups with each viewer based on monitor behavior;

> capturing state transitions by defining monitor behavior in a plurality of state machine families each representing viewing behavior of the particular demographic group;
> at a client-side system, combining the statistical state machine families into global statistical state machines defined in probability density function, based in part on bias metrics;
> updating and reinforcing the global probability density function upon determining that a given probability function has a higher confidence level than a previous probability density function." (emphasis added).

In contrast, the cited references of Alexander and Rosser do not teach or suggest each of the features of claims 1, 8 and 31.

More particularly, the cited references to not teach or suggest the use of bias metrics in determining preferred program guide information. Furthermore, Alexander and Rosser fail to teach or suggest that the historical data information including demographic information tagged to the viewer is input and the preferred program guide information generated and subsequently associated with the viewer's monitor behavior to define a knowledge base for a demographic group cluster.

Alexander discloses an electronic program guide with customized aspects of the electronic program guide and customized presentation of advertising based on a viewer's profile. Alexander creates a user profile by collecting information from the viewer such as, the viewer's zip code, television, cable and satellite services to which the viewer subscribes, the length of subscriptions, type of television, age of television, place of purchase of the television, viewers favorite channels, and times the viewer is most likely to watch television. If the user opts not to provide this information the EPG will attempt to learn the information. To accomplish this, every time the viewer interacts with the electronic program guide or

television, the electronic program guide records the viewer's actions and the circumstances surrounding those actions. *(See* Col 28, Ln 11-52). The viewer profile information collected may be sent to a computer system at the head end of the television distribution system for analysis and is updated on an ongoing basis. (*See* Col 29, Ln 14-30).

A profile program performs analysis on a basic user profile and simple statistics collected about a specific viewer to develop viewer characteristics. Over time, with sufficient data, the electronic program guide characterizes the viewer as to demographic information such as, sense of humor, chronological age, activity age, marital status, parental status, whether the viewer owns a pet, and if so, what type of pet, consumer tendencies, political affiliations and a broad range of other viewer characteristics. (*See* Col 30 Ln 1-37).

The viewer characteristics are then utilized to provide customized programming content based on the individual user. The viewer profile information may be reported along with statistical reports of viewer profile information for many viewers. These reports may be provided to advertisers, head end operators, guide producers or others to determine programming offerings based on the collected data. (*See* Col 33, Ln 8-15)

Thus, Alexander uses collected profile information to provide a specifically tailored programming guide for a single viewer based on the assumed preferences of the viewer. The profile information of other users may also be used to make certain assumptions, presumably based on correlations made with static demographic definitions.

However, Alexander does not disclose "inputting historical data information regarding demographic information tagged to the viewer" as recited in claim 1. Instead, Alexander collects information about a viewer's behavior to try to

determine a demographic group for the viewer. However, Alexander does not tag behavioral data with demographic information about the user. Further, Alexander does not "generate preferred program guide information based on the viewer's demographic group and based on bias metrics". Rather, Alexander teaches using static demographic statistics to attempt to classify a user as a member of that demographic. Alexander does not teach or suggest the use of bias metrics of an entire demographic group to generate preferred program guide information. In addition, Alexander does not teach or suggest that the viewer's monitor behavior is associated to the generated preferred program guide information to define a knowledge base with demographic cluster information of the viewer in terms of statistical state machine transition models. Alexander is silent as to demographic group clusters or defining a knowledge base containing demographic cluster information based on the monitor behavior of a viewer as compared to preferred program information generated based on the viewer's entire demographic group, based in part on bias metrics.

The Rosser reference fails to cure the deficiencies of Alexander. Particularly, Rosser discloses a system of anonymous target profiling in which a viewer profile is created based on monitored usage patterns and stores a continuously updated version of a usage profile. Targeted advertising may be presented based on a demographic or psychographic profile of a viewer or family based on their viewing habits.(*See* Col 3 Ln26 – Col 4 Ln 41). However, Rosser fails to cure the deficiencies of Alexander as Rosser does not teach or suggest the features and limitations in claims 1 and 31 as described above.

Alexander and Rosser taken individually or in combination with each other fail to teach each element of claim 1; therefore, a prima facie case of obviousness has not been made. Withdrawal of the 35 U.S.C. §103(a) rejection of claim 1 and 31 is respectfully requested.

Regarding claim 8, Alexander does not disclose "capturing state transitions by defining monitor behavior in a plurality of statistical state machine families each representing viewing behavior of the particular demographic group". The Examiner cites Alexander at Col 29, Ln 30-52 as disclosing this feature. However, Alexander teaches that the EPG records the viewer's actions and the circumstances surrounding those actions each time the user interacts with the EPG. Alexander does not teach or suggest that state transitions are captured for a plurality of statistical state machines families, each representing viewing behavior of the particular demographic group. Alexander collects information about an individual viewer's actions, not a particular demographic group.

Further, Alexander does not disclose "updating and reinforcing the global probability density function upon determining that a given probability function has a higher confidence level than a previous probability density function based in part on bias metrics." Alexander discloses "information about the viewer is captured on an ongoing basis. Similarly, viewer profile data is updated on an ongoing basis." (Col. 29, 22-24). Thus, Alexander continually updates an individual viewer's profile, but fails to teach or suggest a global probability density function (i.e. a probability function based on a demographic group); nor does the reference teach that the global PDF be updated and reinforced upon determining that a given probability function has a higher confidence level than a previous probability density function, based in part on bias metrics. Alexander merely provides periodic updates for an individual viewer profile based purely on the viewer's EPG interactions.

Rosser fails to cure the deficiencies of Alexander with regard to claim 8 as described above. Specifically, Rosser does teach or suggest updating and reinforcing a global probability density function as claimed. Rosser discloses a "viewer usage interpreter [that] could be generated statistically by having a sample of households of know profile factors, who have their viewing habits

monitored by a central system." (Col 3, Ln 45 – Col 4, Ln 1). However, Rosser does not teach a global probability density function based on statistical state machine families representing viewing behavior of a particular demographic group as claimed. For the reasons presented above, independent claim 8 is patentable over Alexander and Rosser. Withdrawal of the 35 U.S.C. §103(a) rejection of claim 8 is respectfully requested.

Dependent claim 5 depends from patentable base claim 1, and is patentable for at least the same reasons presented above regarding claim 1. Withdrawal of the 35 U.S.C. §103(a) rejection of claim 8 is respectfully requested.

Claim 9 depends from patentable base claim 8, and is patentable for at least the same reasons presented above regarding claim 8. Furthermore, neither Alexander nor Rosser teach or suggest the use of statistical state machines as claimed in claim 9. Therefore claim 9 is patentable over Alexander and Rosser for the reasons presented above. Withdrawal of the 35 U.S.C. §103(a) rejection of claim 9 is respectfully requested.

Claim 17 depends from patentable base claim 1, and is patentable for at least the same reasons presented above regarding claim 1. Further, Alexander and Rosser fail to teach or suggest the feature of claim 17, specifically "updating the historical data information upon determining that a given data item has a probability function with a higher confidence level than a previous data item". Neither Alexander nor Rosser teach or suggest the updating of information relating to demographic group as claimed. Therefore claim 17 is patentable over Alexander and Rosser for the reasons provided above. Withdrawal of the 35 U.S.C. §103(a) rejection of claim 17 is respectfully requested.

Claims 27, 28, 29 and 30 depend ultimately from patentable base claim 1, and is patentable for at least the same reasons presented above regarding claim 1.

Withdrawal of the 35 U.S.C. §103(a) rejection of claim 27-30 is respectfully requested.

Claims 2-4, 10-13, 16 and 24-26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Alexander and Rosser and further in view of U.S. Patent Application Publication No. 2005/0235318 to Grauch et al. (hereinafter "Grauch"). Claims 2-4 and 24 depend ultimately from allowable base claim 1 and are patentable for at least the same reasons presented above with regard to claim 1. Claims 10-13, 16, 24 and 25 depend ultimately from allowable base claim 8 and are patentable for at least the reasons discussed above with regard to claim 8.

Furthermore, Grauch fails to cure the deficiencies of Alexander and Rosser discussed above. Grauch does not teach or suggest "inputting historical data information regarding demographic information tagged to the viewer for the viewer's demographic group" as claimed. Grauch discloses a system for tracking subscriber use of network applications. Grauch teaches that a collector associated with a user's set top box, may obtain data about an subscriber actions or changes in programming that are of interest.. Event records are buffered and uploaded to a merge processor which creates timelines for each subscriber. (paragraph [0011]). The merge processor may filter the collected and merged data to generate reports ranging from descriptions of a single user's viewing patterns to very high level viewing patterns showing the number of users who watched or participated in a particular program for a selected time period. Further, the information may be combined with billing and demographics information to provide detailed information on a particular subscriber's or group of subscribers viewing and related buying patterns. (paragraph [0012]). Grauch discloses collecting data from individual viewer's behaviors and using them to create reports that may including merging information for a number of users. "That information can be combined with billing and demographics information to

provide detailed information on a particular subscriber's or group of subscriber's viewing and related buying patterns." (paragraph [0012]).

Similar to Alexander, Grauch does not "generate preferred program guide information based on the viewer's entire demographic group based in part on bias metrics". Grauch teaches the use of static demographic statistics for an individual that may be merged with other individuals and used with demographic information to determine marketing preferences, but does not teach or suggest the use of bias metrics of an entire demographic group to generate preferred program guide information. Additionally, Grauch does not teach or suggest that the viewer's monitor behavior is associated to generated preferred program guide information to define a knowledge base with demographic cluster information of the viewer in terms of statistical state machine transition models..

Furthermore, Grauch does not teach or suggest "calculating a parameterized transition matrix defining the viewer's viewing habits, the parameterized transition matrix containing information of program transitions initiated by the viewer and wherein the row number and the column number of the element represent the first and the second states". Grauch makes no mention of a matrix to store transitions where the row number and the column number of the element represent a first and second state. Accordingly, claim 2 is patentable over the cited references of Alexander and Rosser in view of Grauch. Withdrawal of the 35 U.S.C. §103(a) rejection of claim 2 is respectfully requested.

Dependent claims 24-26 are patentable at least by virtue of their dependency from patentable base claims. Withdrawal of the 35 U.S.C. §103(a) rejection of claims 24-26 is respectfully requested.

Dependent claim 3 ultimately depends from allowable base claim 1 and is therefore patentable for at least the same reasons presented above regarding

claim 1. Furthermore, claim 3 recites, "defining at least two concurrent transition matrices including a channel matrix and a genre matrix." As discussed above regarding claim 2, the cited references of record fail to teach or disclose the claimed transition matrices. Therefore claim 3 is patentable over Alexander and Rosser in view of Grauch. Withdrawal of the 35 U.S.C. §103(a) rejection of claim 3 is respectfully requested.

Dependent claim 4 depends ultimately from patentable base claim 1, and is therefore patentable for at least the same reasons presented above regarding claim 1. Furthermore, claim 4 recites "the transition matrix as a two-dimension matrix with transitions from television channels to television channels in temporal form." As discussed above regarding claim 2, the cited references of record fail to teach or disclose the claimed transition matrix. Therefore claim 4 is patentable over Alexander and Rosser in view of Grauch. Withdrawal of the 35 U.S.C. §103(a) rejection of claim 4 is respectfully requested.

Dependent claims 22 and 23 depend ultimately from allowable base claim 1 and are therefore patentable for at least the same reasons presented above regarding claim 1. Furthermore, claim 22 recites, "the parameterized transition matrix is in a temporal form". Claims 23 recites, "the parameterized transition matrix includes a first matrix for TV watching activities and second matrix for TV channel surfing." As discussed above with regard to claim 2, the cited references of record fail to teach or suggest a transition matrix as claimed in claims 22 and 23. Examiner asserts Grauch's figure 7 as disclosing a matrix in temporal form, however applicant respectfully disagrees with this conclusion. Figure 7 of Grauch are merely tabular representations of timelines captured in Grauch and in no way disclose a transition matrix as claimed. Therefore claims 22 and 23 are further patentable over Alexander and Rosser in view of Grauch for the reasons presented above.

Regarding claims 10-13, claims 10-13 depend ultimately from allowable base claim 8 and therefore are patentable for at least the same reasons presented above regarding claim 8. Furthermore, claims 10-13 share the feature and limitation, namely a transition matrix that is not taught or suggest by Alexander, Rosser and Grauch either individually or in combination with one another. Claim 10 recites, "the global profile represents demographic cluster information of a viewer in terms of a statistical state machine transition matrix." As discussed above regarding claim 2, the cited references of record do not teach or suggest a transition matrix. Claim 11 recites "the state machines are defined in parameterized transition matrix defining the viewer's viewing habits". Neither the claimed state machine nor the claimed transition matrix are taught or suggested by Alexander and Rosser in view of Grauch. Thus claim 11 is allowable over Alexander and Rosser in view of Grauch. Withdrawal of the 35 U.S.C. §103(a) rejection of claims 10 and 11 is respectfully requested.

Claims 12 and 13 depend ultimately from allowable base claim 8 and therefore are patentable for at least the same reasons as claim 8. Furthermore, claims 12 and 13 recite features and limitations similar to those claimed in claims 3 and 4, respectively, discussed above. Therefore, claims 12 and 13 are additionally patentable over Alexander and Rosser in view of Grauch for the same reasons presented above regarding claims 3 and 4. Withdrawal of the 35 U.S.C. §103(a) rejection of claims 12 and 13 is respectfully requested.

Claim 16 depends ultimately from allowable base claim 8 and is therefore patentable for at least the same reasons presented above regarding claim 8. Furthermore, claim 16 recites, "associating program guide information with the viewer's monitor behavior and defining therefrom a knowledge base with demographic cluster information of the viewer in terms of statistical state machine transition matrices". There is nothing in Alexander, Rosser or Grauch alone or in combination that teaches of suggest demographic cluster information,

statistical state machines or transitional matrices. Accordingly, claim 16 is patentable over Alexander and Rosser in view of Grauch for such additional reasons. Withdrawal of the 35 U.S.C. §103(a) rejection of claim 16 is respectfully requested.

Claims 6, 7 14, 15 and 18-21 stand rejected under 35 U.S.C §103(a) as being unpatentable over Alexander and Rosser and further in view of U.S. Patent No. 6,981,040 to Konig (hereinafter "Konig"). Konig fails to cure the deficiencies of Alexander and Rosser with respect to patentable base claims 1 and 8 from which claims 6, 7, 14, 15 and 18-21 ultimately depend. Specifically, Konig does not teach or suggest "historical data information regarding demographic information tagged to the viewer" as claimed. Koning creates a user profile for individual users based on computer information requested by the user. A probability function is used to determine the likelihood that a user is interested in a particular document or file based on a comparison of the user profiles of other users. Similarity of the user to other users in various clusters may be determined based on the similarity of the user profiles (*See* Col 5, Ln 6-8). Thus, users are clustered into groups of similar users by calculating the distance between User Models. (*See* Abstract*)*. Konig determines similarities between computer users based on their preferences for certain content. However, Konig does not input historical data regarding demographic information tagged to a viewer as claimed. Konig does not disclose tagging demographic information with the user and using that demographic information as an input to generate preferred program guide information. Further, Konig does not disclose generating preferred program guide information based on the historical data information of the viewer's entire demographic group, based in part on bias metrics as claimed. Konig does not teach or suggest an association of preferred program guide information with a viewer's monitor behavior and defining a knowledge base with demographic cluster information of the viewer as claimed.

Further, Konig does not teach or suggest the global probability density function recited in claim 8, nor does Konig teach or suggest the updating and reinforcement of a global PDF based on a given probability function having a higher confidence level than a previous probability density function. Therefore Konig does not cure the deficiencies of Alexander and Rosser.

Claims 6, 7, 14, 15 and 18-21 depend from allowable base claims 1 and 8 and are therefore patentable for at least the same reasons presented above regarding claims 1 and 8. Furthermore, Konig fails to cure the deficiencies of Alexander, Rosser and Grauch. Konig discloses determining preferences through the monitoring of user actions on the computer. Based on the user interactions with the computer, probabilities are computed to determine the likelihood that content in a web page or document is of interest to the user. Such probability analysis may include a hidden Markov process. A user model is defined for each individual user and the parameters are updated continually based on monitored user interactions while the user is engaged in normal use of a computer. (*See* Col 8, Ln 43-53). Data actions of similar users are also incorporated into the user model by clustering all users into a tree of clusters. (Col 10, Ln 5-28). However, Konig does not teach or suggest the use of inputting historical data information regarding demographic information tagged to a viewer for the viewer's demographic group. Furthermore, Konig does not teach or suggest defining a knowledge base with demographic group cluster information of the viewer in terms of statistical state machine transition models. (emphasis added). Therefore, Konig fails to cure the deficiencies of Alexander, Rosser and Grauch and claims 6, 7, 14, 15 and 18-21 are patentable by virtue of the fact that they depend from allowable base claims 1 and 8.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue of comment does not signify agreement with or concession of that rejection, issue or comment. In addition,

because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

CONCLUSION

Having fully addressed the Examiner's rejections it is believed that, in view of the preceding amendments and remarks, this application is in condition for allowance. Accordingly, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the Applicant's attorney at (609) 734-6809 so that a mutually convenient date and time for a telephonic interview may be scheduled.

Please charge any additional fees associated with this Amendment to our Deposit Account No. 07-0832.

Respectfully Submitted,
Isaac Bentolila et al.

By: /Joel M. Fogelson/
Joel M. Fogelson
Attorney for Applicants
Reg. No. 43,613
Tel: 609-734-6809

Thomson Licensing LLC
Patent Operations
P.O. Box 5312
Princeton, NJ 08543-5312

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